

FOIA

EPA-R6-2013-007110

(Re-send)

3 of 3

Corrective Action at

8701 Park Place Blvd.

Houston, TX 77017

5.4.5 SWMU 33 - Coke Storage Pad (Reference 64)

5.4.5.1 Unit Summary

Unit Description: The Coke Storage Pad is located next to the Caustic unloading area. The concrete pad is constructed of reinforced concrete, is sloped to promote drainage, and has curbing on three sides to direct runoff to the drain system. The pad does not have a cover. A sign indicating the purpose of the unit was found laying on the ground. The pad is used to locate 25 cubic yard, roll-off bins. These bins contain the coke, and when full, are removed by a contractor for industrial waste disposal. The bin shown in Photographs #5 and #6 did not have a cover.

Dates of Operation: The pad was constructed in the 1970s. There is no plans for closure.

Wastes Managed: The unit is used to hold nonhazardous waste coke in bins along with assorted trash. The coke contains organic constituents.

Release Controls: As noted above, the unit is a concrete pad, sloped and curbed on three sides to direct runoff to the Skimmer Pit (SWMU 12).

History of Releases: There was no documented evidence of release. At the VSI (64), there was spillage of bin contents onto the pad surface. The pad itself appeared stained. There would also appear to be a low likelihood for wind action to carry away particulates of material as the coke was granular in nature.

5.4.5.2 Conclusions Regarding Potential for Release

Air: There would appear to be a low potential for past and continuing release although the bin is open to wind action. There was no evidence that the local wind is of sufficient strength to carry away the granular coke.

Groundwater/Soils: There would appear to be a low potential for past and continuing release due to the design of the unit.

Surface Water: There would appear to be a low potential for past or continuing release since drainage of the unit is to a drain that connects to the Skimmer Pit.

Subsurface Gas: There would appear to be a low potential for past or continuing release due to unit design.

5.5 Tanks (SWMUs 34 through 36)

There are five tanks listed as SWMUs at the Denka Facility, none of which are RCRA-regulated.

5.5.1 SWMU 34 - Tanks 412 and 413

5.5.1.1 Unit Summary:

Unit Description: These two storage, non RCRA-regulated tanks are located in the far southwest corner of the facility. The units are above ground, open-top tanks. Each tank is 100 feet in diameter and 12 feet in height with an estimated 750,000 gallon capacity each. Each tank sits on a concrete pedestal and is constructed of carbon steel with a concrete internal liner. Currently, only tank 413 is in operation. Tank 412 is empty but plans for operation of this unit are underway. A photograph was taken of the unit, but was not developed due to technical problems at the lab.

Dates of Operation: The tanks were constructed and put into operation in 1969. No closure is planned.

Wastes Managed: The units are operated for the storage of aqueous monomer waste streams and polymer sludge. The material was originally caustic. However, since the late 1970's, materials stored in these tanks have been neutralized prior to storage; thereby, reducing effects of caustic (high pH) on the tank walls. The wastes are eventually transferred to the biological treatment ponds (SWMU 11).

Release Controls: A 1-foot concrete liner was recently placed in each unit to upgrade the integrity of tank walls. The tanks are equipped with shutoff pumps and flow is controlled manually. Overflow is controlled by increasing the flow from the tanks to the aeration ponds. There is no secondary containment system around this unit.

History of Releases: The units have had a history of spillage, principally prior to installation of the liner and neutralization of the waste. During the VSI, valves on tank 413 were being repaired. These repairs resulted in a constant flow of waste (several gallons per minute) being released to the ground, which eventually flowed through the Splitter Box (SWMU 14) to the storm water pond (SWMU 6).

6.5.2.2 Conclusions Regarding Potential for Release

Air: Due to the nature of the waste and unit design (open-top), there is a moderate potential for past or continuing release to this media.

Groundwater/Soils: Due to past practices and the present spillage, there appears to be a moderate potential for past and continuing release to these media.

Surface Water: Due to the drainage of spillage to the Storm Water Pond (SWMU 6), there is a low potential for past and continuing release to this media.

Subsurface Gas: Due to the amount of spillage and the possible presence of organics, moderate potential for past or continuing generation of subsurface gas exists.

5.5.3 SWMU 35 - Tank 415

6.5.3.1 Unit Summary:

Unit Description: Tank 415 is located immediately east of tank 412 in the southwest corner of the facility. The tank is on non-RCRA-regulated active unit. The tank is open-top, above ground and has an estimated capacity of 40,000 gallons. The unit is constructed of carbon steel and is 12 feet tall by 10 feet in diameter. The tank is used as a flow through device rather than a storage unit, and conveys drum sludge from SWMU 9 to off site treatment. A photograph was taken but did not develop due to technical problems at the photo lab.

Dates of Operation: The unit was installed in 1971. There are no plans for closure.

Wastes Managed: The tank is designed as a flow through device to draw alum sludge from the alum clarifiers (SWMU 9) and convey it to other treatment at Gult Coast Waste Disposal facility. There are no known hazardous constituents in the waste managed in this unit (64).

Release Controls: The tank is designed with level and flow control systems. There are pump controls on discharge streams which stop wastes from being sent off site. There are control valves at the alum clarifiers and aeration ponds to cease pumping individual waste streams as needed. There is no secondary containment system dedicated to this unit.

History of Releases: There are no documented releases from this unit.

5.5.3.2 Conclusions Regarding Potential for Release

Air: Due to the nature of the waste, there appears to be a low potential for past or continuing release to this media.

Groundwater/Soils: Due to unit design and the nature of waste, there appears to be a low potential for past or continuing release to this media.

Surface Water: Due to unit design, there appears to be a low potential for past or continuing release to this media.

Subsurface Gas: Due to unit design, there appears to be a low potential for past or continuing release to this media.

5.5.4 SWMU 36 - Two Clarifiers (Reference 64)

6.5.4.1 Unit Summary

Unit Description: The two clarifiers are located immediately west of the aeration ponds (SWMU 11). The two units are adjacent to each other, and they are used to clarify sludge out of treated effluent. The two clarifiers are circular, concrete tanks, that are open-topped, mostly below-grade, and unlined. The unit is generally filled to near capacity, and overflow is controlled by a rectangular weir located at the center of each unit. Effluent is then pumped to an outfall. The visible concrete appeared in good condition, with no cracks or severe erosion. The units are each fed by inlet piping located below grade. Outlet piping is located below grade also. A photograph was taken but it did not develop.

Dates of Operation: The units were constructed in 1965. There is no plan for closure.

Wastes Managed: The units manage effluent pumped from the aeration ponds. The treated effluent is clarified to remove any suspended solids. The solids are collected at the bottom of the clarifiers, and then pumped back into the aerators for further treatment.

Release Controls: The units, as described above, are prevented from overflowing by a weir located in the center of each unit that allows clarified water to flow over into a separate piping system. This clarified liquid is discharged to Sim's Bayou through the NPDES discharge outfall.

History of Releases: There is no documented evidence of release from these units. At the time of the VSI, there were no visible signs of overflow or other release.

5.5.4.2 Conclusions Regarding Potential for Release

Air: There would appear to be a low potential for past or continuing release to the air given the nature of the wastewater.

Groundwater/Soils: Based on unit design and the nature of the wastewater, there is a low potential for past or continuing release to these media.

Surface Water: The units are designed to control overflow. The past and continuing potential for release is consequently low.

Subsurface Gas: There is no potential for generation of subsurface gas in the past or on a continuing basis based on unit design.

5.6 Container Storage (SWMUs 37 through 42)

There are, six non-RCRA container storage areas on site.

5.6.1 SWMU 37 - Asbestos Roll-Off Bin (Reference 64)

5.6.1.1 Unit Summary

Unit Description: The designated container for asbestos wastes is placed next to the Latex Trench (SWMU 16). The unit is a 25-cubic yard, unlined, roll-off bin. The unit is denoted by tape, stretched around its perimeter. Yellow flags are placed at intervals warning personnel to "keep out" as shown in Photograph #31. The flag shown in the photo is not very obvious. The bin is hauled away when full. Wastes appeared to be placed in secured plastic bags.

Dates of Operation: The unit has been operated for at least 2 years. There is plan for closure.

Wastes Managed: The unit is used to hold waste asbestos pulled from process units on site.

Release Controls: The unit has no release controls.

History of Releases: No release was documented or observed.

5.6.1.2 Conclusions Regarding Potential for Release

Air: Due to the nature of waste handling, there appears to be a low potential for past or continuing release.

Groundwater/Soils: Due to the nature of waste handling, there appears to be a low potential for past or continuing release.

Surface Water: Due to the nature of waste handling, there appears to be a low potential for past or continuing release.

Subsurface Gas: There is no potential for subsurface gas generation due to the nature of the waste and unit design.

5.6.2 SWMU 38 - Empty Drum Storage Area

5.6.2.1 Unit Summary

Unit Description: Located near the Neoprene Finishing Plant and adjacent to SWMU 3, Latex Waste Pile, the Empty Drum Storage Area is the designated point for storage of empty product drums plant wide. In addition, it appeared that partially filled drums of unidentified material were also placed at the unit. The unit itself covers about 100 feet by 100 feet. Most drums are empty and turned upside down to avoid collection of rainwater. A few drums, such as those identified in Photograph #30, may actually contain materials, although their contents were not always identified. Over 100 drums were estimated at the area. These drums are stored prior to drum reconditioning by a contractor.

Dates of Operation: The unit has operated intermittently since before 1980. There is no projected closure date.

Wastes Managed: Generally, only empty drums are stored. Some drums containing unidentified material were noted.

Release Controls: The unit is located on bare soil. There are no controls except for pallets and the overturning of barrels. There is no windbreak, roof, or warning signs.

History of Releases: While there have been have been no documented releases, the VSI (64) disclosed some surface soil staining. The staining appeared oily in places, and with coloration in others.

5.6.2.2 Conclusions Regarding Potential for Release

Air: The surface stains indicate some volatile materials (oily, solvents) may be present. The potential for past and continuing release is considered moderate as a result.

Groundwater/Soils: Due to this evidence of staining, the potential for soil contamination and groundwater is considered moderate.

Surface Water: Given the proximity of storm water ditches, there is a moderate potential for releases to wash directly to Sim's Bayou.

Subsurface Gas: There appears to be a low potential for past and continuing subsurface gas generation and release based on the nature of the unit.

5.6.3 SWMU 39 - QC Lab Waste Drum Storage Area (Reference 64)

5.6.3.1 Unit Summary

Unit Description: At the QC Laboratory Building, drums of wastes are temporarily stored as shown in Photographs 20, 21, and 24, prior to handling by a waste contractor. Generally, anywhere up to two dozen drums are stored on pallets, one high, often with lids and packing. The area is not denoted for use as a waste drum storage area. There appeared to be two separate locations at the lab used for the drum storage. All storage was on asphalt or concrete. Curbing was not evident, and drainage was to a clean storm water sewer.

Dates of Operation: Drums have been stored at the laboratory since construction in the 1970s. There is no plan for closure.

Wastes Managed: There is a potential for any wastes produced plant-wide to be stored given that the testing and analytical lab services the entire plant. Drums contained hazardous constituents such as lab reagents and spent solvents.

Release Controls: The drums were packed in some cases, and most were covered with lids.

History of Releases: While no releases was documented during the PR, Photographs #20 and #24 showed drum leakage. It appeared that some drums leaked directly into a clean storm water drain.

5.6.3.2 Conclusions Regarding Potential for Release

Air: The potential for release to the air both in the past and on a continuing basis is low. This is due to the operation and nature of the wastes (mostly covered and packed).

Groundwater/Soils: There did not appear to be a potential for release to soils or the groundwater in the past or as a continuing release due to the area being covered with asphaltic concrete.

Surface Water: There is a moderate potential for past or continuing release, given the discharge to the clean storm water system that is directly accessed to the Bayou.

Subsurface Gas: There is no potential for past or continuing release due to unit design.

5.6.4 SWMU 40 - Spent Catalyst Storage Area (Monomer Plant)
(Reference 100)

5.6.4.1 Unit Summary

Unit Description: As shown in Photograph #12, this unit is located next to the Control Building for the Monomer Plant, and it is a staging and temporary storage area for up to two dozen buckets of wastes and waste drums. The buckets hold spent catalyst. The labeled drums hold spent solvents. None of the buckets are labeled or dated. The buckets are elevated on pallets. Drums are placed directly on concrete. The area drains to the Skimmer Pit via trenches.

Dates of Operation: Wastes have probably been stored at the location probably since the monomer plant was built in the 1970s. There is no plan for closure.

Wastes Handled: Spent solvents and catalysts are handled at the unit. Spent catalysts appeared to contain copper due to the coloration. A facility representative also indicated this fact.

Release Controls: There were no release controls except for the pavement.

History of Releases: No releases were documented or observed at the time of the VSI (64).

5.6.4.2 Conclusions Regarding Potential for Release

Air: There was no evident potential for past or continuing release based on the nature of the wastes and unit designed operation.

Groundwater/Soils: There was no evident potential for past or continuing release based on the nature of the wastes and unit operation.

Surface Water: There is only a low potential for past and continuing release due to the nature of the storage operation.

Subsurface Gas:

The potential for subsurface gas generation and release is low due to the nature of the unit.

5.5.5 SWMU 41 - Spent Catalyst Storage Area (Maleic Warehouse) (Reference 64)

5.6.5.1 Unit Summary

Unit Description: Containers of waste are temporarily stored at the Maleic Plant warehouse as shown in Photograph #14. Fifty-five-gallon drums are elevated on pallets and appeared properly labeled for disposal or recycling. They were stacked 2-high.

Dates of Operations: This unit has been in operation since the 1970s. There is no plan for closure.

Wastes Managed: Spent catalysts are stored in the drums.

Release Controls: No special precautions appear to be taken. There was adequate ventilation, and containers appear to be properly stored.

History of Releases: There was no documented or visible evidence of release at the unit.

5.6.5.2 Conclusions Regarding Potential for Release

Air: There is no potential for past or continuing release due to unit design and operation.

Groundwater/Soils: There is no potential for past or continuing release due to unit design and operation.

Surface Water: There is no potential for past or continuing release due to unit design and operation.

Subsurface Gas: There is no potential for past or continuing release due to unit design and operation.

5.6.6 SWMU 42 - Roll-Off Bin at Latex Trench (Reference 64)

5.6.6.1 Unit Summary

Unit Description: As shown in Photographs #35 and #37, a 25-cubic yard roll-off bin is permanently located straddled across the latex trench system (SWMU 16). As shown in Photograph #36, a wet industrial waste is sprayed into the unit via a pipe suspended above the ground. The material was aromatic (organics), and liquids dripped from the unit into the underlying trench (SWMU 16). The bin was uncovered and unlined.

Dates of Operation: The bin has been stationed at the trench since the 1970s. There is no plan for closure.

Wastes Managed: The facility representative was unable to identify the constituents in the waste. The Neoprene Finishing plant is the source. There probably are organic constituents in the waste.

Release Controls: The unit discharged liquid into the Latex Trench (SWMU 16).

History of Releases: The entire area was covered in residue. It was impossible to identify whether the roll-off was a principal source. The unit discharged liquid into the Latex Trench (SWMU 16).

5.6.6.2 Conclusions Regarding Potential for Release

Air: There is a high potential for past and continuing release given the design and operation of the unit, and the aromatic nature of the waste.

Groundwater/Soils: Given the unit operation and possible presence of organic constituents, there is a high potential for release to soils at the groundwater on a past and continuing basis.

Surface Water: Due to the proximity of clean storm water drainage ditches and the presence of residue throughout the remedial area, there is a moderate potential for constituents to release to surface water on a past and continuing basis.

Subsurface Gas: Due to the aromatic nature of the waste, there is a low likelihood that volatile constituents will migrate into the subsurface and generate gas.

5.7 Incineration (SWMU 43)

5.7.1 SWMU 43 - Waste Gas Incinerator (References 27 and 64)

5.7.1.1 Unit Summary

Unit Description: This non RCRA-regulated incinerator is used to burn off gas from the production of maleic anhydride. It is located near the Maleic Process Plant, adjacent to the surface impoundment area. The unit is regulated by the Texas Air Control Board. The off-gases are taken off reactors and channeled through scrubber towers prior to incineration. A stack is used to disperse emissions. The unit burns the off gas at a rate of 300,000 pounds per hour. When the energy content of the gas falls below 12,000 Btu/lb., then natural gas (methane) is injected to raise the energy content of the gas. A destruction and removal efficiency (DRE) of about 97 percent is achieved according to facility representatives.

Dates of Operation: The unit was installed in 1975. It has operated continuously since then.

Wastes Managed: Off gases from the maleic anhydride plant are burned in the unit.

Release Controls: A DRE of 97 percent is maintained.

History of Releases: There are no known documented releases. None were observed during the VSI.

5.7.1.2 Conclusions Regarding Potential for Release

Air: Air releases from this unit are regulated under TACB.

Groundwater/Soils: Due to the nature of the unit and the wastes managed, there is no potential for past or continuing release to these media.

Surface Water: There does not appear to be a potential for past or continuing release to this media due to facility design.

Subsurface Gas: There is no potential for past or continuing release due to the nature of the wastes handled and the unit design.

6.0 AREAS OF CONCERN

This section of the PR/VSI report identifies 7 major areas of concern that were observed during the VSI.

6.1 Area of Concern A - Outside Storage Area

Outside the warehouse storage building, located just east of the aeration ponds, are solvent product drums that appeared for the most part to be in good condition. However, there were two drums that were not on pallets and that were turned over on their sides, and lying on the bare soil. As shown in Photograph #25, the area is stained heavily with an oily substance that probably came from the overturned drums. The stained area drains apparently down a slope and into the ditch adjacent to the aeration ponds (SWMU 11) which leads to the - Splitter Box (SWMU 14). The area had no other containment.

6.2 Battery Storage Area

Located next to the solvent storage area sump (SWMU 22) is temporary storage of used batteries (see Photograph #3). The batteries appeared to be in good condition, although Denka is looking to find a recycler for the used batteries. The batteries were stored on the pavement, without the benefit of secondary containment. There was also an open solvent container used by Denka employees for supply of work solvent.

6.3 Area of Concern C - Oil Spill on Building

As shown in Photograph #34, there is an oil slick apparent on the side of the Neoprene Finishing Plant building. It appeared that the slick originated in a blower atop the building. The thick, viscous liquid was fresh; along the ground surface, it had pooled and saturated the soil.

6.4 Area of Concern D - Maleic Anhydride Stream Sampling Station

As shown in Photograph #28, there appeared to be an inadvertent spill of maleic waste at the sampling station, due to the presence of maleic waste on the bare soil surface underlying the piping, and the apparent newer pipe section and flanges that could indicate a replaced pipe or flange. The material on the ground had not been cleaned up.

6.5 Area of Concern E - Diesel and Gasoline Tank Storage Area

Near the Tanks 412 and 413 were located some tanks used to store gasoline and diesel fuel for dispensing to employee work vehicles. The tanks did not employ any spill protection devices, and were observed to have leaked fuel to the soil. The photograph of the AC did not develop.

6.6 Area of Concern F - Dispensing Station for Solvents and Oils

As shown in Photographs #22 and #23, solvents are stored in 55-gallon drums near the facility QC laboratory. As shown an employee is tapping the acetone drum for material. There is apparent spillage on the pavement which has resulted because a

drip pan has not been used. The spillage appears to course over to a drain, which goes to the clean storm water drainage system. In Photograph #22, a sign is posted warning against dumping of hazardous material into the drain. However, stains on the pavement show release have and are occurring on an intermittent basis.

6.7 Area of Concern G - Two Recovered Chloroprene Tanks

The two recovered chloroprene tanks are located immediately north of the neoprene warehouse. The tanks are nonregulated, active storage units. The tanks are horizontal above ground and enclosed in a diked concrete pad to collect spills (Photograph #18). The tanks have an estimated capacity of 30,000 gallons each. The units are stainless steel. Waste chloroprene from the adjacent polymer building is pumped to the units for eventual recycling.

During the VSI, it was apparent that significant spillage has occurred in the side diked concrete pad area.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Solid Waste Management Units

7.1.1 SWMU 1 - Maleic Pond - Upper Section

Suggested Further Action: RCRA Facility Investigation (RFI)

Reasons: This RCRA-regulated unit managed hazardous wastes/constituents, and was closed as a disposal unit. The area was capped, graded, and seeded at closure; however, there was no vegetation observed during the VSI. Groundwater monitoring results have shown contamination in wells downgradient of the surface impoundment area after it's closure.

7.1.2 SWMU 2 - Process Waste Storage Area

Suggested Further Action: Soil sampling

Reasons: It is not known whether or not hazardous constituents are present in the area. A possible release of waste was noted during the VSI along a channel within the Area. The stain constituents of the waste require identification. If they are hazardous, the area should undergo an RFI.

7.1.3 SWMU 3 - Waste Pile

Suggested Further Action: Soil sampling

Reasons: It is not known whether hazardous constituents are present in the area. Staining indicating possible contamination was noted within the area during the VSI. The constituents of the stain require identification. If hazardous, the area should undergo a RFI.

7.1.4 SWMU 4 - Imhoff Pond

Suggested Further Action: RFI

Reasons: During the VSI, widespread staining and release of oily material in the pond. This RCRA-regulated unit is scheduled to be clear-closed, and is to then be operated as a nonhazardous impoundment.

7.1.5 SWMU 5 - Maleic Pond - Lower Section

Suggested Further Action: Soil sampling along the bank of the unit

Reasons: This currently RCRA-regulated unit is scheduled for the closure for which a demonstration that hazardous waste or constituents are not managed in the unit will be provided by the facility. For this demonstration, the facility is testing for corrosivity and chromium only. Additional sampling is suggested to detect the presence or absence of other expected hazardous constituents in the unit, or in the soil adjacent to

the unit. If detected, an RFI is suggested for the unit. During the VSI, staining was evident and gas was detected escaping from subsurface soils (bubbles were viewed escaping from the soil).

7.1.6 SWMU 6 - Lake Hausenstein

Suggested Further Action: Soil sampling at the inlet pipe

Reasons: Storm water entering this RCRA-regulated unit is reportedly uncontaminated. During the VSI, the liquid was cloudy white. Soil sampling is suggested underneath the inlet pipe to confirm the presence of hazardous constituents. If hazardous constituents are found, an RFI is suggested.

7.1.7 SWMU 7 - Solar Pond

Suggested Further Action: No further action is suggested at this time

Reasons: The unit has accepted nonhazardous, clarifier sludge in the past and on at least one occasion(s) has overflowed its dike. There were no hazardous constituents involved, however.

7.1.8 SWMU 8 - Anaerobic Pond

Suggested Further Action: No further action is suggested at this time

Reasons: The unit has accepted wastes in the past and on at least one occasion(s) has overflowed its dike. Wastes did not contain any hazardous constituents.

7.1.9 SWMU 9 - Alum Clarifiers

Suggested Further Action: No further action is suggested at this time

Reasons: Due to unit design and the nature of the wastes, no release of hazardous waste or constituents is expected to have occurred or be continuing to occur at this unit.

7.1.10 SWMU 10 - Two Boiler Blowdown Ponds

Suggested Further Action: No further action is suggested at this time

Reasons: Due to unit design and the nature of the wastes, no release of hazardous waste or constituents is expected to have occurred or be continuing to occur at this unit.

7.1.11 SWMU 11 - Three Aeration Ponds

Suggested Further Action: No further action is suggested at this time

Reasons: Due to this RCRA-regulated unit and the nature of the wastes, no release of hazardous waste or constituents is expected to have occurred or be continuing to occur at this unit.

7.1.12 SWMU 12 - Skimmer Pit

Suggested Further Action: No further action is suggested at this time

Reasons: This unit is used intermittently. Controls adequate to prevent the release to hazardous waste or constituents to the environment appear to be employed at this unit.

7.1.13 SWMU 13 - Two Latex Pits

Suggested Further Action: RFI

Reasons: Due to observed release related to poor housekeeping practices, these units should undergo subsurface investigation to determine the extent of contamination.

7.1.14 SWMU 14 - Splitter Box

Suggested Further Action: Restrict all flow through unit to Lake Hausenstein

Reasons: Due to unit design, there is a moderate potential for past and continuing release.

7.1.15 SWMU 15 - RCP Pit

Suggested Further Action: Soil sampling

Reasons: Due to observed releases related to poor housekeeping practices, the unit has demonstrated a high potential for release of hazardous waste or constituents to the subsurface.

7.1.16 SWMU 16 - Latex Trench System

Suggested Further Action: RFI

Reasons: Due to observed releases related to poor housekeeping practices and possible downgradient contamination, the unit has demonstrated a high potential for release of hazardous waste or constituents to the subsurface.

7.1.17 SWMU 17 - Chemical Trench

Suggested Further Action: No further action is suggested at this time

Reasons: The unit is used intermittently. Controls adequate to prevent the release to hazardous waste or constituents to the environment appear to be employed at this unit.

7.1.18 SWMU 18 - Clean Storm Water Drainage Ditch

Suggested Further Action: Soil sampling

Reasons: Due to the presence of wastes and oily stains in the unit (see Photograph No. 15), soil and subsurface soils contamination is expected. The unit has no release controls.

7.1.19 SWMU 19 - Ditch Alongside Aeration Ponds

Suggested Further Action: Soil sampling

Reasons: Due to the presence of wastes and oily stains in the unit (see Photograph No. 27), soil and subsurface soils contamination is expected. The unit has no release controls.

7.1.20 SWMU 20 - Ditch Alongside Rail Line of Monomer Plant

Suggested Further Action: Soil sampling

Reasons: Due to the presence of wastes and oily stains (see Photograph No. 13), soil and subsurface soils contamination should be investigated. The unit has no release controls.

7.1.21 SWMU 21 - Monomer Plant Sump

Suggested Further Action: No further action is suggested at this time

Reasons: The unit is used intermittently. Controls adequate to prevent the release to hazardous waste or constituents to the environment appear to be employed at this unit.

7.1.22 SWMU 22 - Solvent Storage Sump

Suggested Further Action: No further action is suggested at this time

Reasons: The unit is used intermittently. Controls adequate to prevent the release to hazardous waste or constituents to the environment appear to be employed at this unit.

7.1.23 SWMU 23 - Lift Station at Lake Hausenstein

Suggested Further Action: No further action is suggested at this time

Reasons: The unit is used intermittently. Controls adequate to prevent the release to hazardous waste or constituents to the environment appear to be employed at this unit.

7.1.24 SWMU 24 - Sump at Tank 402

Suggested Further Action: No further action is suggested at this time

Reasons: The unit is used intermittently. Controls adequate to prevent the release to hazardous waste or constituents to the environment appear to be employed at this unit.

7.1.25 SWMU 25 - Abandoned Sump at Tank 413

Suggested Further Action: No further action is suggested at this time

Reasons: Based on the VSI observation, the unit has low potential for release to any media.

7.1.26 SWMU 26 - Drum/Tanks Bay

Suggested Further Action: No further action is suggested at this time

Reasons: Area appeared generally free of release evidence. Adequate release controls are employed at present.

7.1.27 SWMU 27 - Caustic Unloading Area

Suggested Further Action: Soil sampling

Reasons: Unit design now decreases continuing potential for release. In the past, spillage was reportedly routine.

7.1.28 SWMU 28 - Tank Truck Unloading Pad

Suggested Further Action: No further actions are suggested at this time

Reasons: Adequate release controls appear to be employed.

7.1.29 SWMU 29 - Processed Neoprene and Latex Material on Pallets

Suggested Further Action: Relocate the waste storage area and decontaminate the area

Reasons: In the current state, the waste may be a source of contamination to the clean storm water system, hence causing discharge of constituents directly to Sim's Bayou.

7.1.30 SWMU 30 - Latex Pits Pad

Suggested Further Action: Soil sampling

Reasons: Due to operational practices, the unit has some potential for release to the soil surrounding the pad, and for particles to be dispersed by wind.

7.1.31 SWMU 31 - HEB Cleaning Pad

Suggested Further Action: Soil sampling

Reasons: It is not known whether hazardous constituents are present in the area. Staining indicating possible contamination was noted during the VSI within the area adjacent to the unit. The constituents of the stain require identification. If they are hazardous, the area should undergo an RFI.

7.1.32 SWMU 32 - Tank Car Loading Area

Suggested Further Action: Soil sampling

Reasons: Due to past operational practices the unit has some potential for release to the subsurface.

7.1.33 SWMU 33 - Coke Storage Area Pad

Suggested Further Action: No further action is suggested at this time

Reasons: The unit appears to have adequate controls to prevent the release of hazardous waste or constituents to the environment.

7.1.34 SWMU 34 - Tanks 412 and 413

Suggested Further Action: Soil sampling

Reasons: During the VSI, the unit was discharging waste that is believed to contain minimal quantities of hazardous constituents. Soil sampling is suggested, because of the one-time spill, to verify the absence of hazardous constituents.

7.1.35 SWMU 35 - Tank 415

Suggested Further Action: No further action is suggested at this time

Reasons: Adequate release controls appear to be employed.

7.1.36 SWMU 36 - Two Clarifiers

Suggested Further Action: No further action is suggested at this time

Reasons: Adequate release controls appear to be employed.

7.1.37 SWMU 37 - Asbestos Roll Off Bin

Suggested Further Action: No further action is suggested at this time

Reasons: Adequate release controls appear to be employed.

7.1.38 SWMU 38 - Empty Drum Storage Area

Suggested Further Action: Soil sampling

Reasons: It is not known whether hazardous constituents are present in the area. Possible contamination was noted at the VSI within the area. The stain constituents require identification. If hazardous, the area should undergo an RFI.

7.1.39 SWMU 39 - QC Laboratory Waste Drum Storage Area

Suggested Further Action: Secondary containment is suggested

Reasons: Due to the presence of staining indicating prior releases, there appears a need to place the drum area in secondary containment.

7.1.43 SWMU 43 - Incinerator

Suggested Further Action: No further action is suggested at this time

Reasons: Adequate release controls appear to be employed at this unit.

7.2 Areas of Concern

7.2.1 Area of Concern A - Outside Storage Area

Suggested Further Action: Clean up of the spillage, and documentation that contamination has been removed.

Areas of Concern B - Battery Storage Area

Suggested Further Action: Remove batteries

Reasons: The batteries are stored improperly, with a high potential for release. Open soil is apparent behind the storage area. If a storage area is selected, it should be properly constructed to control releases of battery acid.

Area of Concern C - Oil Spill on Building

Suggested Further Action: Clean up spillage

Reasons: The spillage appeared to be saturating the ground surface. This material should be cleaned up immediately to avoid subsurface contamination. The source of the spillage should be located and repaired/replaced.

Area of Concern D - Maleic Anhydride Stream Sampling Station

Suggested Further Action: Clean up spill

Reasons: Spillage of maleic waste is source of hazardous constituents to the subsurface.

Area of Concern E - Diesel and Gasoline Tank Storage Area

Suggested Further Action: Clean up and install drip pans

Reasons: An observed release was documented during the VSI.

Area of Concern F - Dispensing Station for Solvents and Oils

Suggested Further Action: Install a drip pan

Reasons: In the past, there has been direct release of hazardous constituents to the clean storm water system. Installation of a drip pan can easily prevent continuing release.

Areas of Concern G - Two Recovered Chloroprene Tanks

Suggested Further Action: Check integrity of containment.

Reasons: Due to poor housekeeping practices, the paved diked containment should be checked for integrity to determine the potential for release to the subsurface.

INTRODUCTION

A visual site inspection (VSI) of Denka Chemical Corporation's Houston facility was conducted by representatives of US EPA Region VI on July 20 and 21, 1987. The objectives of the VSI were to verify and determine the location of all solid waste management units (SWMUs), to visually inspect each SWMU, and to enable EPA representatives to attain a technical understanding of current and historical facility processes and waste flows.

Photographs of each SWMU and Area of Concern were taken to document conditions at the facility and waste management procedures used. No samples were taken during the site visit. Prior to the VSI, a site safety checklist was completed and it was determined that for the VSI, Level D personal protection was all that was required.

The following participated in the VSI:

- Michael Huls - Work Assignment Manager
- Eric White - Principal Investigator
- Paula Mrozek - Principal Investigator
- Al Besozzi - Denka Superintendent Industrial Hygiene
- Bob Hinkson - Denka Manager, Quality Assurance

SITE INVESTIGATION

Participants arrived at the plant on the Monday morning, July 20, 1987, at 9 AM. An initial briefing was held with the facility representatives. The briefing was held to discuss the purpose of the VSI and the RFA process, and to resolve any questions the RFA team had with respect to information discovered during the PR. The meeting adjourned at about 2 PM that afternoon.

The following morning, the facility tour was conducted, beginning at 8 AM. The weather was clear and sunny, with no discernible wind, and moderate humidity. Temperatures reached about 93 degrees F.

Photographs were taken of all of the facility SWMUs and Areas of Concern by Michael Huls using a Pentax K1000 35 mm camera with a 35-70 mm lens. No special filters were used. The film was Kodak 100 ASA VRG film.

The field log is provided in Attachment 2 following the captioned photographs. It is noted that photographs 1, 2, 40, 42 through 46, and 54 were unable to be shown since they were misdeveloped by the photolab.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Central Records Files (MC - 199) **Date:** February 6, 2008
Lanxess Corp. (former Bayer Corp.)
Solid Waste Registration No. 31052

Thru: Jim Sher, Manager
Environmental Cleanup Section I, Remediation Division

From: Eleanor T. Wehner, CA Program Manager
Remediation Division

Subject: Documentation of achievement of facility-wide remedy selection and remedy construction complete (CA-400 and CA-550)
EPA ID No. TXD084972777 ✓
TCEQ SWR No. 31052

Based on a file review, **remedies have been selected for all units and areas of concern (AOCs) subject to RCRA/HSWA corrective action at the above-referenced facility.** The RCRA milestone of facility-wide Remedy Decision (CA400)¹ has been achieved, based on the approval of the proposed remedy for addressing the closure of facility-wide soil and groundwater contamination to Risk Reduction Standard No. 2 Standards associated with releases from the units listed below on October 13, 2006. Remedies had previously been selected for all units and AOCs subject to corrective action at the facility.

Based on site characterization activities, **construction of physical remedies is not needed.** The milestone of facility-wide "No Remedy Construction Needed" (CA550NR)² has been met. This determination is based on the approval of no further action and deed recordation of soil and groundwater contamination associated with releases from the units/AOCs listed below on April 11, 2007. Remedy decisions of no further action had previously been approved for all other units and AOCs subject to corrective action at the facility.

The units and AOCs considered in this evaluation include

<u>RFI Units & AOCs subject to Corrective Action</u>	<u>Remedy Decision¹</u>	<u>Approval of Remedy Construction/Completion²</u>
South Boiler Blowdown Pond	10/13/2006 ³	4/11/2007 ³
IHW AOCs	10/13/2006 ³	4/11/2007 ³

TCEQ Solid Waste Registration No. 31052
Interoffice Memorandum dated February 6, 2008
Page 2

Old Maleic Pond	10/13/2006 ³	4/11/2007 ³
North Boiler Blowdown Pond	10/13/2006 ³	4/11/2007 ³
Maleic Pond	10/13/2006 ³	4/11/2007 ³
Lake Hausenstein	10/13/2006 ³	4/11/2007 ³
Alum Settling Basins	10/13/2006 ³	4/11/2007 ³
Aeration Basins	10/13/2006 ³	4/11/2007 ³

RCRA Regulated, Permitted Units subject to Compliance or Corrective Action Monitoring

NA

Interim Status or Unauthorized Units

Aeration Basin (series 388; 3 units)	6/18/1987 ³	10/14/1999 ³
--------------------------------------	------------------------	-------------------------

To date, no additional units subject to corrective action requirements have been identified at the facility.

Eleanor T. Wehner for M. Paski
Eleanor T. Wehner

cc: Waste Program Manager, TCEQ Region 12 Office, Houston

Notes:

"The event when the state or EPA formally selects a remedy designed to meet RCRA Corrective Action long-term goals of protection of human health and the environment. This event code also applies when no further corrective action is required because stabilization measure(s) have already been implemented or because the site characterization has demonstrated the attainment of the long-term RCRA Corrective Action goals." See RCRAInfo Data Dictionary for complete event code definition.

TCEQ Solid Waste Registration No. 31052
Interoffice Memorandum dated February 6, 2008
Page 3

Each unit and AOC must have an approved remedy for this event code to apply facility-wide.

2 "The event when the state or EPA acknowledges in writing that the RCRA facility has completed construction of a facility's remedy that was designed to achieve long-term protection of human health and the environment, and that the remedy is fully functional as designed, whether or not final cleanup levels or other requirements have been achieved. Remedy construction may also acknowledge the event where no remedy is constructed." See RCRAInfo Data Dictionary for complete event code definition. Each unit and AOC must have an approval of the remedy construction or approval of the decision that no physical construction is needed for this event code to apply facility-wide.

3 Date confirmed through TCEQ correspondence review.

4 Date obtained from RCRAInfo database.

5 Date obtained from facility correspondence.

6 Date obtained from TCEQ database.

TE

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Bayer Corporation
Facility Address: 8701 Park Place Blvd., Houston, TX 77017
Facility EPA ID #: TXD084972777

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

X If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Page 2

- | | <u>Yes</u> | <u>No</u> | <u>?</u> | <u>Rationale / Key Contaminants</u> |
|-----------------------------|------------|-----------|----------|-------------------------------------|
| Groundwater | _____ | <u>X</u> | _____ | _____ |
| Air (indoors) ² | _____ | <u>X</u> | _____ | _____ |
| Surface Soil (e.g., <2 ft) | _____ | <u>X</u> | _____ | _____ |
| Surface Water | _____ | <u>X</u> | _____ | _____ |
| Sediment | _____ | <u>X</u> | _____ | _____ |
| Subsurf. Soil (e.g., >2 ft) | _____ | <u>X</u> | _____ | _____ |
| Air (outdoors) | _____ | <u>X</u> | _____ | _____ |

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

A copy of this facility's database printout is attached, highlighting the reports which support the "YE" determination.

²Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 3

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential Human Receptors (Under Current Conditions)

<u>"Contaminated" Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	___	___	___	___			___
Air (indoors)	___	___	___	___			
Soil (surface, e.g., <2 ft)	___	___	___	___	___	___	___
Surface Water	___	___			___	___	___
Sediment	___	___			___	___	___
Soil (subsurface e.g., >2 ft)	___	___		___			___
Air (outdoors)	___	___	___	___	___		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place; whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s): _____

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Page 4

4

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

1. The first part of the document is a header section containing the following information:

- Project Name: [REDACTED]
- Project Number: [REDACTED]
- Project Location: [REDACTED]
- Project Start Date: [REDACTED]
- Project End Date: [REDACTED]
- Project Manager: [REDACTED]
- Project Sponsor: [REDACTED]
- Project Status: [REDACTED]
- Project Description: [REDACTED]
- Project Objectives: [REDACTED]
- Project Risks: [REDACTED]
- Project Budget: [REDACTED]
- Project Resources: [REDACTED]
- Project Deliverables: [REDACTED]
- Project Milestones: [REDACTED]
- Project Stakeholders: [REDACTED]
- Project Communication: [REDACTED]
- Project Reporting: [REDACTED]
- Project Monitoring: [REDACTED]
- Project Evaluation: [REDACTED]
- Project Review: [REDACTED]
- Project Closure: [REDACTED]

2. The second part of the document is a table containing the following information:

Item	Description	Quantity	Unit Price	Total Price
1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
8	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
9	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
10	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
11	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
12	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
13	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
14	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
15	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
16	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
17	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
18	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
19	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
20	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
21	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
22	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
23	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
24	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
25	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
26	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
27	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
28	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
29	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
30	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
31	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
32	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
33	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
34	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
35	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
36	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
37	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
38	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
39	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
40	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
41	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
42	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
43	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
44	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
45	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
46	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
47	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
48	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
49	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
50	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
51	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
52	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
53	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
54	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
55	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
56	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
57	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
58	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
59	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
60	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
61	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
62	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
63	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
64	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
65	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
66	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
67	[REDACTED]	[REDACTED]	[REDACTED]	

⁴ If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 5

5

Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")-continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or printed text on the paper.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 6

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

 X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **BAYER CORPORATION, HOUSTON** facility, EPA ID # **TXD084972777**, located at **8701 PARK PLACE BLVD., HOUSTON, TEXAS** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

 NO - "Current Human Exposures" are NOT "Under Control."

 IN - More information is needed to make a determination.

For "NO" or "IN" determination, expected date of "YE" determination _____

Completed by *M. M. Padaki*
MURALI M. PADAKI
CORRECTIVE ACTION SPECIALIST

Date 08/06/2001

Supervisor

Cathy Remmert
CATHY REMMERT
SUPERVISOR
TEXAS

Date 10/22/01

Locations where References may be found:

If "YE" Code is assigned then attach a copy of database, highlight the reports which support "YE" determination.

Contact telephone and e-mail numbers

MURALI PADAKI
(512) 239-2356
MPADAKI@TNRCC.STATE.TX.US

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

YE confirmed
8/28/02
(Date w/ 8-1 10/22/01)

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

TE

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Bayer Corporation
Facility Address: 8701 Park Place Blvd., Houston, TX 77017
Facility EPA ID #: TXD084972777

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

 X If yes - check here and continue with #2 below.

 If no - re-evaluate existing data, or

 if data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 2

2. Is groundwater known or reasonably suspected to be "contaminated" above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

☒ X If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

☐ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

☐ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The TNRCC has approved Bayers' proposal to remediate the groundwater, on a site wide basis rather than a unit by unit approach, in accordance with the TNRCC Risk Reduction Standard (RRS) No. 3, pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S. Also, the recent groundwater monitoring report indicates Migration of Contaminated Groundwater is Under Control. The main Constituents of Concern (COCs) at the site are benzene, chlorobenzene, cis-1,2-dichloroethene, 1,2-dichloroethane, toluene, ethylbenzene, trichloroethene, chloroethane, and vinyl chloride. Bayer is trying to remediate the groundwater to TNRCC Risk Reduction Standard (RRS) No. 2, pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S.

A copy of this facility's database printout is attached, highlighting the reports which support the "YE" determination.

Footnotes:

¹"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

Page 3

 X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"²).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) - skip to #8 and enter "NO" status code, after providing an explanation.

If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): The recent groundwater monitoring report indicates Migration of Contaminated Groundwater has been stabilized.

[The page contains faint horizontal lines and a large, illegible watermark or bleed-through from the reverse side.]

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Page 4

_____ If yes - continue after identifying potentially affected surface water bodies.

X If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Page 5

5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 6

6. Can the discharge of "contaminated" groundwater into surface water be shown to be **"currently acceptable"** (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be **"currently acceptable"**) - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 7

7. Will groundwater monitoring / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

 X If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

 If no - enter "NO" status code in #8.

 If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

Bayer will collect groundwater monitoring / measurement data on a semi-annual basis and submit an annual report to verify that migration of contaminated groundwater is under control.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 8

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

 X YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **BAYER CORPORATION, HOUSTON** facility, EPA ID # **TXD084972777**, located at **8701 PARK PLACE BLVD., HOUSTON, TEXAS**. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

 NO - Unacceptable migration of contaminated groundwater is observed or expected.

 IN - More information is needed to make a determination.

For "NO" or "IN" determination, expected date of "YE" determination _____

Completed by

M. M. Padaki

Date 08/27/2002

MURALI M. PADAKI

CORRECTIVE ACTION SPECIALIST

Supervisor

Cathy Remmert

Date 8/28/02

CATHY REMMERT

SUPERVISOR

TEXAS

Locations where References may be found:

If "YE" Code is assigned then attach a copy of database, highlight the reports which support "YE" determination.

Contact telephone and e-mail numbers

MURALI PADAKI

(512) 239-2356

MPADAKI@TNRCC.STATE.TX.US

*Records updated
8/28/02*

Query variables used to produce this report:

Search on: 31052

For: Finished Documents

With: No Date Range Restrictions

Through:

From:

Doc#	SWR / Fac ID	Facility	Date Rcd	Dated	Title	Type	Description	Due Date	Rev from	Fin Date	Doc Comment
14662	31052	BAYER CORP	11/12/01	11/09/01	SWIMLs AREAS OF CONCERN DEED CERTIFICATION	LTR-DEED/IC	RRS2	03/12/02		03/11/02	MPAD
12948	31052	BAYER CORP	05/22/01	05/18/01	REVISED SECT 4.0 PROPOSED MONITORING PLAN OF STAND 3 GW CLO PLAN DOC	WP	RRS3	11/18/01		07/31/01	MPAD
12456	31052	BAYER CORP	04/02/01	03/28/01	SUBMITTAL OF UPDATED PAGES FOR STD. 3 GRND. WTR. CLOSURE PLAN	LTR	RRS3	07/31/01		07/31/01	MPAD
10372	31052	BAYER CORP	09/08/00	08/31/00	2 - RISK REDUCTION STANDARD 3 GW CLOSURE PLAN	WP	RRS3	03/07/01		07/31/01	MPAD
10353	31052	BAYER CORP	09/08/00	08/31/00	2 COPIES OF ENVIRONMENTAL ASSESSMENT RPT	RPT	INV/ASSESS	01/08/01		08/01/01	MPAD
9744	31052	BAYER CORP	07/05/00	06/27/00	DEED CERTIFICATION - LAKE HAUSENSTEIN	LTR-DEED/IC	RRS2	11/02/00		07/27/00	MPAD
9743	31052	BAYER CORP	07/05/00	06/27/00	DEED CERTIFICATION - MALEIC POND	LTR-DEED/IC	RRS2	11/02/00		07/27/00	MPAD
9741	31052	BAYER CORP	07/05/00	06/27/00	DEED CERTIFICATION - OLD MALEIC POND	LTR-DEED/IC	RRS2	11/02/00		07/27/00	MPAD
9740	31052	BAYER CORP	07/05/00	06/27/00	DEED CERTIFICATION - ALUM POND	LTR-DEED/IC	RRS2	11/02/00		07/27/00	MPAD
9565	31052	BAYER CORP	07/05/00	06/27/00	DEED CERTIFICATION - BOILER BLOWDOWN	LTR-DEED/IC	RRS2	11/02/00		07/27/00	MPAD
8403	31052	BAYER CORP	04/19/00	04/18/00	CORRECTED TEXT SUBMITTAL FOR SURFACE IMPOUNDMENT CLOSURE	WP	MISC	07/18/00		04/28/00	MPAD
8550	31052	BAYER CORP	04/28/00	04/25/00	NOTICE OF INTENT (GRANDFATHERING)	LTR	NOTICE	06/15/00		05/22/00	MPAD
6386	31052	BAYER CORP	11/04/1999	10/28/1999	SURFACE IMPOUNDMENT CLOSURE REPORT LAKE HAUSENSTEIN (OCTOBER 1999)	RPT	RRS2	04/30/00	02/02/00	04/28/00	MPAD
6385	31052	BAYER CORP	11/04/1999	10/28/1999	SURFACE IMPOUNDMENT CLOSURE REPORT OLD MALEIC POND (OCTOBER 1999)	RPT	RRS2	04/30/00	02/02/00	04/28/00	MPAD
6384	31052	BAYER CORP	11/04/1999	10/28/1999	SURFACE IMPOUNDMENT CLOSURE REPORT MALEIC POND (OCTOBER 1999)	RPT	RRS2	04/30/00	02/02/00	04/28/00	MPAD
6383	31052	BAYER CORP	11/04/1999	10/28/1999	SURFACE IMPOUNDMENT CLOSURE REPORT NO&SO BOILER BLOWDOWN BASIN (OCT 99)	RPT	RRS2	02/02/00		01/31/00	MPAD
6382	31052	BAYER CORP	11/04/1999	10/28/1999	SURFACE IMPOUNDMENT CLOSURE REPORT ALUM POND SETTLING BASIN (OCT 1999)	RPT	RRS2	02/02/00		01/31/00	MPAD
12426	31052	BAYER CORP	03/29/01	03/27/01	SUBMITTAL OF FEB. 2001 GW MONITORING RPT	RPT	NRN			04/04/01	MPAD
6396	31052	BAYER CORP	11/08/1999	11/01/1999	GPRA EI CHECKLISTS AND SCHEDULE	RPT	NRN			11/29/1999	MPAD
6381	31052	BAYER CORP	11/05/1999	11/02/1999	GROUND WATER INVESTIGATION REPORT (SEPTEMBER 9, 1999)	RPT	NRN			03/02/00	MPAD
6380	31052	BAYER CORP	11/05/1999	11/01/1999	GROUNDWATER INVESTIGATION REPORT (FEBRUARY 5, 1999)	RPT	NRN			03/02/00	MPAD
3664	31052	BAYER CORP	04/09/1999	04/09/1999	RESOLUTION OF WASTEWATER ISSUE	LTR	NRN			04/29/1999	MPAD
3697	31052	BAYER CORP	04/05/1999	03/30/1999	SURFACE IMPOUNDMENT CLOSURES	RPT	NRN			04/08/1999	MPAD

This is a voluntary submittal: C reviewing the Groundwater Corrective Action Proposal;

Meeting Held on 02/28/2000: B is going to submit a new propo GW cleanup;

Meeting Held on 02/28/2000: B is going to submit a new propo GW cleanup;